

CLAIMS

WHAT IS CLAIMED IS:

- 5 1. An electrical device having pulse width modulation controls for providing a plurality of settings for operation of the device, comprising:
- a system for selectively controlling the frequency of the pulse width modulation to provide a desired output operational intensity in response to a known input signal, the system including a high frequency pulse width modulation signal module adapted to
- 10 provide frequencies above the audible range of anticipated users of such electrical device, the module including a signal converter operably connectable to such a known input signal and adapted to convert such an input signal to produce a high frequency pulse width modulation output signal suitable for operating such electrical device at the desired output operational intensity, wherein the output signal has a frequency above the audible
- 15 range for anticipated users of such an electrical device.
2. The device of claim 1, wherein the signal converter comprises:
- a high frequency signal generator adapted to produce a high frequency triangle signal having a frequency above the audible range for anticipated users of such an
- 20 electrical device; and
- a comparator module adapted to receive the known input signal and the high frequency triangle signal and perform a comparison operation on the signals in order to produce the high frequency pulse width modulation output signal suitable for operating such electrical device at such a desired output operational intensity, wherein the output
- 25 signal has a frequency above the audible range for anticipated users of such an electrical device.
3. The device of claim 1, wherein the known input signal is a DC voltage signal for causing the system to provide the desired output operational intensity.

4. The device of claim 1, wherein the known input signal is a low frequency pulse width modulation signal having a frequency within the audible range for anticipated users of such an electrical device for causing the system to provide the desired output
5 operational intensity.

5. The device of claim 1, wherein such device is a fan having pulse width modulation controls for providing a plurality of settings for operation, wherein the frequency of the pulse width modulation is selectively controlled by the system to
10 provide the desired output operational intensity in response to the known input signal.

6. The device of claim 1, wherein the output signal has a frequency of at least 25kHz, thereby being above the audible range for anticipated users of such an electrical device.
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7. The device of claim 2, wherein the triangle signal has a frequency of at least 25kHz in order to cause the high frequency pulse width modulation output signal to be above the audible range for anticipated users of such an electrical device.

8. The device of claim 1, wherein such device is a blower having pulse width modulation controls for providing a plurality of settings for operation, wherein the frequency of the pulse width modulation is selectively controlled by the system to
20 provide the desired output operational intensity in response to the known input signal.

9. The device of claim 1, wherein such device is a medical device having pulse width modulation controls for providing a plurality of settings for operation, wherein the frequency of the pulse width modulation is selectively controlled by the system to
25 provide the desired output operational intensity in response to the known input signal.

10. The device of claim 1, wherein such device is a digital video recorder having pulse width modulation controls for providing a plurality of settings for operation, wherein the frequency of the pulse width modulation is selectively controlled by the system to provide the desired output operational intensity in response to the known input
5 signal.

11. The device of claim 2, wherein the comparator module comprises a comparator module adapted to receive the known input signal and the triangle signal, convert the known input signal by scaling in order to ensure that the ranges of the known input signal and triangle signal are substantially equivalent to facilitate operation of such device at the
10 desired operational intensity, and perform a comparison operation on the signals in order to produce the high frequency pulse width modulation output signal suitable for operating such electrical device at such a desired output operational intensity, wherein the output signal has a frequency above the audible range for anticipated users of such an electrical
15 device.

12. The device of claim 2, wherein the comparator module comprises a comparator module adapted to receive the known input signal and the triangle signal, convert the triangle signal by scaling in order to ensure that the ranges of the known input signal and
20 triangle signal are substantially equivalent to facilitate operation of such device at the desired operational intensity, and perform a comparison operation on the signals in order to produce the high frequency pulse width modulation output signal suitable for operating such electrical device at such a desired output operational intensity, wherein the output signal has a frequency above the audible range for anticipated users of such an electrical
25 device.

13. The device of claim 2, wherein the comparator module comprises a comparator module adapted to receive the known input signal and the triangle signal, convert the known input signal and the triangle signal by scaling in order to ensure that the ranges of

the known input signal and triangle signal are substantially equivalent to facilitate operation of such device at the desired operational intensity, and perform a comparison operation on the signals in order to produce the high frequency pulse width modulation output signal suitable for operating such electrical device at such a desired output
5 operational intensity, wherein the output signal has a frequency above the audible range for anticipated users of such an electrical device.

14. The device of claim 4, wherein the signal converter comprises an RC circuit for converting the low frequency pulse width modulation signal into a DC voltage signal for
10 causing the system to provide the desired output operational intensity, the DC voltage signal corresponding to the low frequency pulse width modulation signal, wherein the signal converter is adapted to convert such a DC voltage signal to produce a high frequency pulse width modulation output signal suitable for operating such electrical device at the desired output operational intensity, wherein the output signal has a
15 frequency above the audible range for anticipated users of such an electrical device

15. The device of claim 3, further comprising a thermistor adapted to detect a temperature and produce the DC voltage signal at a voltage level corresponding to the detected temperature in order to perform such operation of such electrical device at an
20 operational intensity correlated to the detected temperature.

16. A personal computing device, comprising:
a housing defining an interior of such personal computing device;
a first memory space oriented within the interior of such personal computing
25 device, suitable for storing program instructions;
a second memory space oriented within the interior of such personal computing device, suitable for storing data;
a processor operably connected to the first memory space and to the second memory space, the processor adapted to receive and execute the program instructions of

the first memory space and adapted to receive data from and send data to the second memory space;

a cooling device configured to cool the interior of such personal computing device, having pulse width modulation controls for providing a plurality of settings for operation of the device, including:

a system for selectively controlling the frequency of the pulse width modulation to provide a desired output cooling intensity in response to a known input signal, the system including a high frequency pulse width modulation signal module adapted to provide frequencies above the audible range of anticipated users of such personal computing device, the module including a signal converter operably connectable to such a known input signal and adapted to convert such an input signal to produce a high frequency pulse width modulation output signal suitable for operating such cooling device at the desired output cooling intensity, wherein the output signal has a frequency above the audible range for anticipated users of such a personal computing device.

17. The personal computing device of claim 16, wherein the cooling device comprises a fan and wherein the cooling intensity comprises the speed of the fan rotors in order that the speed of the fan rotors correspond to such a setting for operation of the device based on the known input signal.

18. The personal computing device of claim 16, wherein the cooling device comprises a blower and wherein the cooling intensity comprises the air output rate of the blower in order that the speed of the fan rotors correspond to such a setting for operation of the device based on the known input signal.